

REMARKS

A. Background

Claims 1-19 were pending in the application at the time of the Office Action. Claims 1-11 were rejected as being directed towards not statutory subject matter. Claims 1, 2, 4-7, 11-15, and 19 were rejected as being anticipated by cited art. Claims 8-10 and 16-18 were rejected as being obvious over cited art. Claim 3 was deemed to contain allowable subject matter if rewritten in independent format. By this response applicant has amended claim 1. As such, claims 1-19 are presented for the Examiner's consideration in light of the following remarks.

B. Proposed Amendments

Applicant has herein amended claim 1 to clarify that the steps of the method are performed by a dispersion monitoring apparatus. The amendments to the claims are supported throughout the specification. In view of the foregoing discussion, applicant submits that the amendments to the claims do not introduce new matter and entry thereof is respectfully requested.

C. Rejection based on 35 USC § 101

Page 2 of the Office Action rejects claims 1-11 under 35 USC § 101 as not falling within one of the four statutory categories of invention. Specifically, the Office Action alleges that various method steps of claims 1 and 5 are not tied to any apparatus and therefore do not qualify as a statutory process. Of the rejected claims, claim 1 is the lone independent claim.¹ In light of

¹ The Office Action also asserts that claim 5 is an independent claim. Applicant notes, however, that claim 5 includes a method step of "providing a dispersion variation amount ... by the method according to any one of Claims 2 to 4." As such, claim 5 depends from any of claims 2-4, which in turn depend from independent claim 1. Thus, contrary to the assertion of the Office Action, claim 5 is not an independent claim.

amendments made herein to claim 1, applicant submits that this rejection has been overcome and should be withdrawn. Specifically, as noted above, independent claim 1 has been amended to recite that the steps of claim 1 are “performed by a dispersion monitoring apparatus.” As such, the processes recited in claim 1 and claims 2 through 11, which depend from claim 1, are now tied to a particular apparatus.

D. Rejection based on 35 USC § 102

Pages 3-9 of the Office Action reject claims 1, 2, 4-7, 11-15, if and 19 under 35 USC § 102(e) as being anticipated over U.S. Patent No. 6,980,738 to Frankel et al. (“*Frankel*”). Applicant respectfully traverses this rejection. Of the rejected claims, claims 1, 12, and 13 are independent claims.

Frankel is directed to a dispersion compensation module for compensating dispersion in a communications network. See Abstract. As shown in Figure 2, the *Frankel* module includes a thermal regulator 34 that is used in conjunction with a temperature sensor 38 to control the temperature of a dispersion compensating fiber (DCF) 32. A controller 38 is used to change the temperature of the dispersion compensating fiber by sending a signal that adjusts the thermal regulator 34 when temperature adjustments are desired. See col. 3, lines 47-66.

Referring to Figure 3, *Frankel* shows four curves of dispersion coefficient D as a function of wavelength. According to *Frankel*, two of the curves (labeled T_A and T_B) correspond to a single dispersion compensating fiber, or DCF, at different temperatures. See col. 4, lines 35-38. The curve labeled F corresponds to a conventional transmission fiber and the last curve (labeled F+T_A in Figure 3) corresponds to “a sum of the dispersion characteristics of the [conventional] transmission fiber and the DCF.” Col. 4, lines 38-43. In other words, F+T_A is simply a net sum

of the dispersion characteristics of a DCF and a conventional fiber, not the dispersion characteristic of a single fiber. Based on the net sum curve, *Frankel* uses temperature compensation of the DCF to compensate for the conventional transmission fiber, to yield a net sum of zero. See col. 5, lines 2-7.

As noted above, only T_A and T_B of Figure 3 of *Frankel* correspond to the DCF. And although *Frankel* discloses that the dispersion characteristic of the DCF changes with respect to temperature (i.e., the dispersion curve goes from T_A to T_B with respect to a temperature change ΔT), the slope of the dispersion curve does not change. That is, as can be seen in Figure 3, the slope of the T_A curve and the T_B curve are substantially the same. *Frankel*, in fact, admits this, stating that “(a)ltering temperature of the dispersion compensating fiber typically causes a shift of the zero-dispersion wavelength ... with little measurable change in the dispersion slope as shown in FIG. 3.” Column 4 lines 64-66.

Because the slope of the dispersion of the DCF in *Frankel* does not change with respect to temperature, Applicant submits that *Frankel* does not disclose or suggest a method of or apparatus for monitoring a dispersion on a transmission optical fiber in a system in which “**the dispersion of the transmission optical fiber has a slope that changes with respect to temperature changes,**” as recited in independent claims 1 and 12, or an apparatus for compensating a temperature dependency of a dispersion slope in a system in which “**the dispersion slope of a transmission optical fiber changes with respect to temperature changes,**” as recited in independent claim 13.

Applicant submits that the rejected independent claims are distinguished over the cited art for other reasons as well. For example, in the Office Action, the Examiner alleges that the optical receivers 22 of *Frankel* comprise the means by which the dispersions of the extracted

wavelength channels are monitored. See, e.g., Office Action at p. 4, lines 5-8; p. 8, lines 6-8; and p. 9, lines 1-4. Applicant submits, however, that this is an invalid characterization of *Frankel*. As admitted by the Office Action, *Frankel* discloses that the optical receivers 22 are used “to monitor signal quality” on the transmission channel. *Frankel* col. 6, lines 1-3; see also Office Action at p. 4, lines 6-8. Applicant submits, however, that signal quality is not the same thing as dispersions; that is, the quality of an optical signal is not determined directly from the dispersion variation amount. Thus, while *Frankel* may arguably teach monitoring signal quality, this does not mean that *Frankel* teaches monitoring dispersions.

Because *Frankel* only teaches monitoring signal quality, which is different than dispersion, Applicant submits that *Frankel* also does not disclose or suggest a method step of “monitoring dispersions of the extracted wavelength channels,” as recited in claim 1, or “monitoring means for monitoring dispersions of the extracted wavelength channels,” as recited in claim 12, or “monitoring means for monitoring dispersions of two or more of wavelength channels on the transmission optical fiber,” as recited in claim 13.

In light of the above, applicant respectfully requests that the anticipation rejection with respect to independent claims 1, 12, and 13 be withdrawn.

Claims 2, 4-7, 11, 14, 15, and 19 depend from claims 1 and 13 and thus incorporate the limitations thereof. As such, applicant submits that claims 2, 4-7, 11, 14, 15, and 19 are distinguished over the cited art for at least the same reasons as discussed above with regard to claims 1 and 13. Accordingly, Applicant respectfully requests that the anticipation rejection with respect to claims 2, 4-7, 11, 14, 15, and 19 also be withdrawn.

E. Rejection based on 35 USC § 103

Pages 10-11 of the Office Action reject claims 9 and 17 under 35 USC § 103(a) as being obvious over *Frankel* in view of U.S. Patent No. 6,925,262 to Ooi et al ("*Ooi*"). *Ooi* was merely cited for allegedly teaching a dispersion compensating unit that includes a filter. Applicant respectfully traverses this rejection.

Claims 9 and 17 respectively depend from claims 1 and 13 and thus incorporate the limitations thereof. As such, even if, *arguendo*, it would have been obvious to combine *Frankel* and *Ooi* in the allegedly obvious manner set forth in the Office Action, the resulting combination would still not cure the deficiencies of *Frankel* with regard to claims 1 and 13. As such, Applicant submits that claims 9 and 17 are distinguished over the cited art for at least the same reasons as discussed above with regard to claims 1 and 13. Accordingly, Applicant respectfully requests that the obviousness rejection with regard to claims 9 and 17 be withdrawn.

Pages 12-13 of the Office Action reject claims 8, 10, 16 and 18 under 35 USC § 103(a) as being obvious over *Frankel* in view of U.S. Patent No. 6,307,988 to Eggleton ("*Eggleton*"). *Eggleton* was merely cited for allegedly teaching a dispersion compensating means that includes a fiber Bragg grating. Applicant respectfully traverses this rejection.

Claims 8, 10, 16 and 18 each depend from claim 1 or 13 and thus incorporate the limitations thereof. As such, even if, *arguendo*, it would have been obvious to combine *Frankel* and *Eggleton* in the allegedly obvious manner set forth in the Office Action, the resulting combination would still not cure the deficiencies of *Frankel* with regard to claims 1 and 13. As such, Applicant submits that claims 8, 10, 16 and 18 are distinguished over the cited art for at least the same reasons as discussed above with regard to claims 1 and 13. Accordingly,

Applicant respectfully requests that the obviousness rejection with regard to claims 8, 10, 16 and 18 be withdrawn.

C. Allowable Subject Matter

Page 13 of the Office Action objects to claim 3 as being dependent upon a rejected base claim, but states that claim 3 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the discussion set forth herein, Applicant declines to rewrite claim 3 in independent form at this time, but reserves the right to do so in the future if so desired by the Applicant.

No other objections or rejections are set forth in the Office Action.

D. Conclusion

Applicant notes that this response does not discuss every reason why the claims of the present application are distinguished over the cited art. Most notably, applicant submits that many if not all of the dependent claims are independently distinguishable over the cited art. Applicant has merely submitted those arguments which it considers sufficient to clearly distinguish the claims over the cited art.

In view of the foregoing, applicant respectfully requests the Examiner's reconsideration and allowance of claims 1-19 as amended and presented herein.

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37

CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefor and charge any additional fees that may be required to Deposit Account No. 23-3178.

In the event there remains any impediment to allowance of the claims which could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Dated this 23rd day of April 2009.

Respectfully submitted,

/Scott A. Woodbury/ Reg. #55743

SCOTT A. WOODBURY

Registration 55,743

DANA L. TANGREN

Registration No. 37,246

Attorneys for Applicant

Customer No. 022913

Telephone No. 801.533.9800

SAW:cad

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